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UNITED STATES DEPARTMENT OF AGRICULTURE  
Bureau of Agricultural Engineering

## MONTHLY NEWS LETTER

(Confidential information, for Bureau staff only  
Not released for publication)

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Vol. 5.

July 25, 1936

No. 11  
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A flume to be used in a study of the hydraulic jump has been built at the University of Iowa. The objects of the study, which will be under the supervision of D.L. Yarnell, are to determine the slope of spillway apron for most efficient jump; the relation of velocities above and below the jump and the height of the jump to the slope of the downstream face of the outlets of the lateral drains, and to the slope of spillways of dams; and the efficiency of the jump on sloping aprons of flood-detention dams and spillways.

The month of June, 1936, marked the close of the first year of operation of the CCC Drainage Camps, the first camp at Bancroft, Iowa, having been opened and occupied by enrollees on June 25, 1935. There are now 36 camps in operation in the Central District.

These camps have during the past year performed maintenance work having a commercial value estimated at \$3,123,000. A total of 77,770,475 square yards of clearing, 57 miles of tile reconditioning, and 8,017,459 cubic yards of excavation and embankment work, constitutes the chief items of work accomplished with an expenditure of 923,761 man-days.

W.H. Tyler, Superintendent of the Owensboro Camp, is at present, Acting Inspector for the Missouri and Kentucky Camps, during the absence of Clark E. Jacoby, who has taken leave until the first of August, due to illness.

A meeting of Superintendents and Engineers of the Indiana and eastern Illinois camps was held at Purdue University July 16 to 18 inclusive.

During the period July 13 to 22, a Cotton-Ginning Extension Conference and Training School was held at the U.S. Cotton Ginning Laboratory, Stoneville, Miss. The instructors in the School were the staffs of the Bureaus of Agricultural Engineering and Agricultural Economics, under Chas. A. Bennett and F.L. Gerdes. This school was held at the instigation of the Departmental Office of Extension in conjunction with the State Extension forces, during which cotton ginning specialists and extension engineers were acquainted with the nature of technical and extension work in connection with cotton ginning and were trained with a view to becoming prepared for their first year of gin improvement extension work. In this training the ability to translate the ginning laboratory recommendations into specifications for power, transmission, drying, cleaning and ginning equipment and its use in local gins were developed and tested. S.P. Lyle has taken a leading part in contacting the various states and assuring the success of this first school. Six states, Georgia, Louisiana, Mississippi, Oklahoma, South Carolina and Texas now have either full-time or part-time cotton ginning specialists. Keen interest is being manifested in this under-



taking, and all who attended the school at Stoneville derived a great deal of good therefrom.

A paper by Chas. A. Bennett entitled "Progress in Ginning Tests and Instruments" was delivered before the Ginners' Association of South Carolina, Columbia, S.C., on June 29, 1936.

Two meetings of the Western Irrigation and Drainage Research Association held in conjunction with the A.S.A.E. meeting at Estes Park were attended by several members of the Division of Irrigation staff and representatives of six State Experiment Stations. R.L. Parshall was elected President of the Association and M.R. Lewis Secretary for the coming biennium.

Wells A. Hutchins left Berkeley June 14 for Albuquerque, N.M., in order to undertake a special assignment for the Soil Conservation Service concerning water rights in the Western States as affecting the contacts of the Soil Conservation Service with the public in those States.

In connection with the Rio Grande joint investigation for the National Resources Committee, a conference was held from June 15 to 17, at which representatives of various Government agencies engaged in the work were present. The Bureau was represented by Messrs. Barrows, Scobey, Blancy, Ewing, and Rohwer. A tour of the valley was made by those in attendance and an open meeting held at Monte Vista. During June field studies were continued; rain gage stations established, additional anemometers, evaporation pans, water stage recorders, etc. installed for the purpose of determining consumptive use of water in moist areas; observations were taken on tanks containing potatoes, grain alfalfa, willow, tules, and native grasses. Compilation of data on consumptive use of water by these crops was begun. Soil sampling was carried on at experimental plots. Data on use of water and crop acreages for past years on file in the Bureau of Reclamation office at El Paso was compiled. Preparation of maps indicating vegetative cover was continued at the rate of about 5 square miles per day in the agricultural section of the valley. Dr. O.W. Israelsen was transferred to the Rio Grande study June 5, and after an inspection trip throughout the area, devoted the greater part of his time to preliminary studies of records in all three divisions of the valley.

In connection with the snow survey project, George D. Clyde reports that during June, 25 snow courses in Utah were resurveyed, marked and cleared. These are located on the Bear, Weber, and Provo River watersheds. The Utah Agricultural Experiment Station cooperated in financing this work.

An examination of the Blitzen Valley and Malheur Lake areas in Oregon and the work being done by three CCC camps was made by L.T. Jessup upon request of the Bureau of Biological Survey in connection with plans for developing these projects. Plans will have to be made for the most economical use of from 60,000 to 115,000 acre-feet of water annually. Comparative studies of various schemes for development and use of water were also made by Mr. Jessup.

A topographical map and plan of distribution system for the Pecos Experiment Station at Brownwood, Texas, was prepared by Harry G. Nickle.

Evaporation data developed by A.A. Young in a study at the LaVerne covered reservoir in southern California, indicated that evaporation from a floating Weather Bureau pan protected from direct sunlight and wind by the reservoir roof was 29 inches less between June 1, 1935 and May 1, 1936, than the evaporation from a similar type of exposed land pan. If the generally accepted coefficient of 0.70 is applied to the land pan, and it is assumed that the floating pan represents reservoir evaporation, the saving in water due to covering the reservoir would be about 13.7 inches in eleven months, which is a small saving compared with the cost of roofing the reservoir. The least evaporation from the reservoir occurred during the summer when the loss from the land pan



was at its maximum. During the winter, evaporation from the floating pan was slightly greater than from the land pan.

R.B. Gray will leave July 22 on a two months' trip through Europe to study the latest developments in farm machinery research, electrification. He plans to visit England, France, Germany, Sweden, Denmark, Belgium, and Italy; and will contact the leading agricultural engineers and research institutions in these countries. *and rural*

In connection with the fertilizer placement studies G.A. Cumings has been inspecting the field experiments in Ohio, Michigan, and New York and conferring with the cooperators on future work with the various crops. W.H. Redit has been in New York State in connection with the fertilizer placement work with cabbage and beans. Preliminary work was also done with colery on muck soils. This type of soil and crop will require a different type of transplanter from the experimental machine now in use, he finds; and some time was spent studying the commercial machines in operation in the New York muck land section. L.G. Schoenlober is changing the 5 row spinach drill from a four-wheeled machine to a three, using a pivoted bull wheel in the center in order that the machine may more closely follow the surface of the bed. C.W. Brockseker has transferred from this Bureau to the Soil Conservation Service, with headquarters at Waco, Texas.

E.M. Mervine reports that the American Society of Agricultural Engineers' annual convention at Estes Park was the largest ever held. There were 510 registered as compared to 450, the most registered previously, with 300 the usual attendance. Thirty-six states, District of Columbia, and Canada were represented.

E.M. Dieffenbach, headquarters at Albany, Ga., was in the Washington office during the last week in June for a conference concerning the reading machine he has developed. The purpose of this machine is to enable reading matter, sent out in the form of film strips, to be enlarged by a simple projector and ground glass to a size that is easily readable. Although his original model operates satisfactorily he is endeavoring to make a smaller and more compact instrument by using appropriate lens and mirrors.

The shipment of Decatur Clay Loam and the Houston Clay to the farm tillage machinery laboratory at Auburn, Ala., is about completed, and tests will be started on these two new soils immediately, according to J.W. Randolph. Delays in shipping and receiving these soils has held up work on the various soil plots recently. A 5000 cubic foot water storage reservoir and a garage and equipment storage building will be built at the laboratory. The latter will harmonize architecturally with the present buildings and will provide storage for all trucks, cars, and tractors as well as a 30 x 30 implement storage room. Space for a pump room, blueprint room, and watchman's quarters are also to be provided.



The utility car, a small power unit constructed at the laboratory, will be used for fitting and preparing the soil plots for tillage tests and for conducting tests of small models of tillage tools.

Recent rains have relieved the drought conditions at Prattville Field somewhat. The plots that were deep-plowed show a wonderful growth of cotton in contrast to some of those where disking was practiced.

Eighty farmers from adjacent counties recently studied the tillage work on the Bureau's Cotton Production Prattville Field.

The 1936 small grain harvest in the Corn Belt was of short duration due to extreme hot dry weather. Work on the testing of small combines in Illinois has been completed and W.M. Hurst has returned to the Washington office. W.R. Humphries reports from Indiana and George Stafford from Ohio that field work in these states will also be finished in the near future. This season has been very favorable for the use of the combine and large numbers of the small power take-off machine have been used. Results of field tests and observations during 1935 and 1936 show satisfactory performance in harvesting both small grain and soybeans.

Good progress is being made on the wheat storage studies. Four 1000-bushel bins, four 500-bushel bins, and ten 20-bushel bins are under observation at Hays, Kansas. Owing to extreme high temperatures and low humidity at time of harvest the wheat in the experimental bins at Hays is not as typical of the region as desired but the experiment should nevertheless yield valuable results. This work is being conducted by A.D. Edgar in cooperation with the Kansas State College.

At Urbana, Ill., seven 300-bushel bins and ten 20-bushel bins are included in the experiments. Wheat stored conforms closely to specifications desired. The bins used are remodeled corn cribs built several years ago by the University of Illinois. An interesting feature is that they are mounted on a railroad track and may be rolled over a scale for daily weighing. Thayer Cleaver represents the Bureau in this project which is in cooperation with the University of Illinois.

At College Park, Md., there are four experimental bins of 500-bushel capacity and ten 20-bushel bins, located on the University of Maryland Experiment Farm. This work is being conducted by M.A.R. Kelley and B.M. Stahl in collaboration with several members of the University of Maryland staff.

In addition to the studies of experimental bins in these three states, 25 or more farmers bins in each state are being studied by representatives of this Bureau and of the Grain Division, B.A.E. A similar group of bins is being studied in the vicinity of Toledo, Ohio, by J.R. McCalmont and representatives of the Toledo office of the Grain Division and of Michigan State College and Ohio State University. Temperatures and wheat samples are obtained in the farm bins in about the same manner as for the experimental bins though less frequently.

At Fargo, N. Dak., the wheat has not yet been harvested. Six 1000-bushel bins and ten 20-bushel bins have been constructed and are ready for filling when wheat is obtained. Due to drought conditions it has been necessary to make special arrangements to obtain a suitable supply of grain.

Bulletins issued:

Care and Maintenance of Cotton Gin Saws and Ribs. (Circ. 393.)

Effect of Artificially Drying Seed Cotton before Ginning on Certain Quality Elements of the Lint and Seed and on the Operation of the Gin Stand. (Tech. Bul. 508.)